

59. Ignoring the costs of flexibility and coordination in the modeling causes TELRIC costs to be understated relative to a real, forward looking network. However, at the same time, the lack of compatibility that is inherent in the TELRIC assumptions decreases the effective longevity that one can assume of the assets in such a model, and this should, for the sake of consistency, be reflected in a higher depreciation rate (shorter life). It is ludicrous to require Ameritech to adopt a highly idealistic, static model of forward looking costs, but prohibit Ameritech from assuming the depreciation rate that is logically consistent with such a model. The lack of flexibility and compatibility, indeed the lack of any costs of transitioning from one technology to the next, and the assumption of instantaneous adoption of the best available technology, must imply a fast rate of obsolescence. Therefore, applying the logically appropriate rate of depreciation not only provides internal consistency to the model, but provides balance against the unduly low costs that result from a TELRIC model, such as Ameritech's, that does not take into account any of the costs of developing a network over time. Requiring Ameritech to price on the basis of a highly idealistic cost model, but to assume a rate of depreciation that is derived from historical observations of real networks, amounts to having one's cake and eating it too.

60. Secondly, opening the market to competition quickens the pace of obsolescence. Economic depreciation fundamentally reflects the forward looking competitive conditions in the market, and those conditions have undergone a large change in the last year. When a market moves from a protected monopoly to one in which entry is permitted and competition is encouraged, there will be an increased demand by members of that industry for the most capable and efficient productive assets that are used to service the market. In other words, there will be more demand for switching equipment with advanced features, for circuitry, for cable, for fiber optics, and for all other inputs into the production of telecommunications services. This increased demand will attract capital to the firms and industries that produce this equipment (Lucent Technologies, Siemens, Ericsson, and Motorola to name a few, as well as new entrants

newly attracted into those businesses). For a while, at least, it will also increase the profitability of those businesses. Hence, competition in telecommunications will increase both the incentive and the means of the upstream *suppliers to that industry* (i.e., the Lucent, et al) to invest in research in and development of newer and better technologies. Moreover, as competition heats up in the market for telecommunications services, and as new entrants arrive, adoption of new technologies is likely to quicken. This further encourages new investment by upstream equipment suppliers in R&D activities. The outcome is an enhanced pace of technological progress.

61. The inevitable counterpart of enhanced technological progress is a quicker rate of obsolescence of existing plant and equipment. Hence, basic economic principles dictate that when a market makes a discrete, parametric shift toward a more competitive environment, plant and equipment will become obsolete faster. This is likely to be true of both existing capital equipment and future capital equipment.

62. Dr. Ankum nevertheless asserts that it would be incorrect to adjust Ameritech's depreciation rates due to the change in the competitive environment, because (in a remarkable non-sequitur): "the market for equipment manufacturing is, of course, largely unaffected by the introduction of competition in local exchange markets in *Michigan*." [Emphasis in original].³⁰ Obviously, the Telecommunications Act has drastically affected the expected competitive conditions in the local exchange markets in Michigan and throughout the country. Whether the pace of innovation is determined by the degree of competitiveness in Michigan specifically is, of course, a red herring; the fact is that the expected degree of competitiveness in the local exchange *in the United States* has increased dramatically, and the United States is clearly a significant component of the entire world's demand for telecommunications equipment. When the structure of the local exchange market in the entire United States undergoes radical change, clearly

³⁰ See June 5, 1997 Affidavit of Dr. August Ankum, p. 46.

suppliers of technology will respond. All users of that technology, in Michigan and around the world, must adjust their depreciation rates accordingly.

63. It is well recognized in the economics literature that the pace of innovation will be determined by both the supply and demand for innovative products. While supply conditions in the U.S. in the short run (competitive conditions among Lucent, et al) may be unaffected by the Telecommunications Act, the short-run demand conditions for newer telecommunication services technologies have undergone radical change. Demand conditions for telecommunications equipment are shaped by the degree of competition and expected competition among the *users* of the innovative products, which include the ILECs and entrants into the local exchange markets. In a seminal paper, Nobel Laureate Kenneth Arrow showed that the incentive to innovate is greater when the industry employing the innovation is competitive than when it is monopolistic.³¹ In a study of the aerospace industry, H.O. Stekler followed the progress of three major innovations during the period 1946 to the 1960s. His study found that members of that industry became increasingly technologically progressive as the government, the industry's major customer, became less protective of the industry and the firms bore more risk and more responsibility for demonstrating their competence.³²

64. In order to determine whether there was an observable effect of the Act on the market for telecommunications equipment, I examined the stock value of two switching equipment manufacturers, Lucent Technologies and Nortel. According to standard finance theory, a firm's stock value reflects the capital market's best estimate of the firm's value going forward. If a change in the economic environment is expected to enhance a firm's long run profitability, the stock value should increase.

³¹ Kenneth J. Arrow, "Economic Welfare and the Allocation of Resources for Invention," in *The Rate and Direction of Inventive Activity: Economic and Social Factors*, Report of the National Bureau of Economic Research, (Princeton: Princeton University Press, 1962), pp. 609-626.

³² H. O. Stekler, "Technological Progress in the Aerospace Industry," *Journal of Industrial Economics*, July 1967.

65. Schedule 3 and Schedule 4 show the results of this exercise. Schedule 3 depicts the compound annual rate of return for Nortel, as well as the return for the S&P500 index, for the period 1/31/94 to 5/22/ 97. As can be seen from the graph, the firm's return fluctuates around the market index until the passage of the Act, at which time it rises above the market return, rises again markedly at the release of the FCC Order issuing the unbundling rules, and remains above the market thereafter. Schedule 4 depicts the same variables for Lucent Technologies, except that the data go back only to April 1996, when Lucent was divested from AT&T. This graph also shows an apparent increase in market value relative to the S&P500 after the release of the FCC Order. For comparison purposes, I have also included Schedule 5 which depicts the same variables for Ameritech. It is clear that Ameritech's return declined at the release of the Order and has remained below the S&P500 thereafter.

66. The data on Lucent and Nortel (as well as Ameritech) are consistent with the economic principles I have explained above. The recent developments in the telecommunications industry appear to have increased the expected future profitability of the suppliers of technology to that industry. It is clear that the capital markets believe that providing capital to suppliers of telecommunications technologies is a good investment.

67. It is commonly recognized that the correct depreciation rate changes if the competitive conditions change. Even accounting standards of depreciation recognize that depreciation rates must be adjusted if changes in the market cause the assets to suffer a significant loss in value. This loss in value is known to accountants as "asset impairment." According to a leading text on financial accounting,

Asset impairments are caused by casualty, obsolescence, lack of demand for a company's products, negligence, or mismanagement. Other reasons for recognizing an impairment include decisions to close a plant or sell a product line, orders to take a product off the market, and expropriation of assets by a

foreign government. Asset impairments lead to a write-down of assets to fair value.³³

68. It is common for businesses to decrease their assets' depreciation lives, or take a write-down, in response to changes in market conditions. For example, due to market conditions in the mid 1980s that resulted in increased obsolescence and a high merger rate, the firms in the Dow Jones industrials wrote down \$10 billion in assets between 1986 and mid 1988.³⁴ Clearly, accounting standards as well as economic principles recognize that depreciation rates are properly adjusted for significant changes in the market. As Dyckman et al put it, "When companies face difficult times, entire groupings of plant assets may be determined to be overvalued and written down."³⁵

69. Assets must be written down if the asset impairment was not properly foreseen and reflected in advance in the depreciation rate. A write-down is a recognition that the depreciation rate chosen originally was too low. A write down does not necessarily have significant economic consequences, however, *unless* the erroneous depreciation rate directly affects output prices. In such a case, advocated by Dr. Ankum, adopting an erroneously low depreciation rate will lead to prices that cannot recover the cost of the asset. The eventual write-down will represent a true economic loss to the company and its shareholders. The beneficiaries will be Ameritech's competitors, who will have been unwillingly subsidized by Ameritech's customers.

70 The third reason that depreciation rates must be adjusted relative to historically-based FCC projection lives is that provision of UNEs to Ameritech's own competitors involves significant risk of stranded plant. The investments that Ameritech will make in order to satisfy

³³ Thomas R. Dyckman, Roland E. Dukes, and Charles J. Davis, *Intermediate Accounting*, (Chicago: Irwin, 1995), p. 572.

³⁴ Penelope Wang, "You Know it When you See It," *Forbes*, July 25, 1988, p. 84.

³⁵ Thomas R. Dyckman, Roland E. Dukes, and Charles J. Davis, *Intermediate Accounting*, (Chicago: Irwin, 1995), p. 572.

its duties under the Telecommunications Act are substantially different in nature from the investments it has made in the past. This is because, even holding technological progress constant, these are much riskier investments than were the investments made to satisfy demand by Ameritech's (previously) captive customers. The customers being serviced by Ameritech in its provision of UNEs are its own competitors. These customers are not, under the terms of their interconnection agreements or under the terms of the Telecommunications Act, bound by any term or volume commitments to Ameritech. They can cease purchasing from Ameritech at any time. If Ameritech increases its loop plant in a specific area in order to satisfy demand for unbundled loops in that area, the fact that Ameritech might have spare loop capacity in another area is irrelevant; plant in place has low fungibility. Nevertheless, after Ameritech makes the investment in additional plant, the customer (such as MCI or AT&T) can choose after a matter of months (or even a single month) to discontinue its usage of Ameritech's assets. To the extent that Ameritech's investment has no alternative use of significant value, the investment is considered "stranded." Stranded plant can be thought of as investment that has experienced abrupt and complete economic depreciation. Once the plant has been stranded, it generates no revenues; hence, it must (in expected value) generate sufficient revenues during its (short) life to recover its costs.³⁶

71. There is good reason to believe that there will, in fact, be stranded plant. Examination of the network design strategies of entrants makes it clear that their networks will, eventually, bypass significant portions of Ameritech's network. As Dr. Ankum explained in his prepared comments before the Michigan Commission in the Ameritech/MCI arbitration proceeding:

³⁶ In some cases the plant may have some alternative use; for example, if MCI stopped leasing loops in a particular area, another customer, such as AT&T, might want to lease them. However, there is likely to be a lag before Ameritech finds another such alternative customer to lease the loops, during which time the investment generates no revenue. So even if the assets are not permanently stranded, they are temporarily stranded, and the revenue they generate over the asset's life is lower than it would be in a monopoly environment in which the assets are virtually certain to be in continuous use.

[I]f we now quickly look at how new entrants have entered the market, like TCG and MFS, they have not entered the market with a network like that [of the incumbent]. It turns out when companies can start fresh with a new network they build the network very differently.

They start off first with fewer switches. In fact, chances are they will acquire one large switch and after that begin to string SONET rings, fiber rings through downtown areas. These fiber rings do two things: they perform the loop functionality, but they also perform the transport functionality.

Now the switch itself, again it has a dual function. It is both the end office switch as well as the tandem switch.³⁷

72. As entrants build their SONET networks, and detach from Ameritech's facilities, there will be significant stranded plant.

73. AT&T's recently announced entry strategy significantly compounds Ameritech's risk of stranded plant. AT&T has patented a new wireless-loop technology that will directly tie home telephones to the AT&T wireless network. According to the Wall Street Journal,

[T]he service when offered would be aimed directly at the tens of millions of local phone customers—residential and business—now served by the Baby Bells, GTE Corp., and other local phone companies, said people close to AT&T. ¼When ready, the new wireless offering could quickly lead to a major restructuring in industry competition if it takes hold¼. 'This is the fixed wireless service that the industry has talked about for a long time as a means of replacing the twisted copper Bell line to the home,' said one executive. 'And AT&T is going to deliver it first.'³⁸

74. AT&T is a formidable competitor. AT&T has the number one ranking brand in Advertising Age's "Top 200 mega-brands by 1995 ad spending."³⁹ According to an industry poll, "(t)he AT&T moniker is so powerful that consumers believe they have heard of it in places

³⁷ Presentation of Dr. August Ankum before the Michigan Public Service Commission, Case No. U-11168, 10/24/96, p. 24.

³⁸ John J. Keller, "AT&T to Test Local-Service Technology," Wall Street Journal, 2/24/97, p. A3.

³⁹ Craig R. Endicott, "Top 200 Brands," *Advertising Age*, May 6, 1996, p. 34.

where it does not exist.”⁴⁰ The risk of wireless bypass of the local loop for both residential and business customers by a company with the marketing muscle and brand name recognition of AT&T could depreciate significant proportions of Ameritech’s outside plant nearly overnight.

75. Finally, the risk of stranded plant was not as important in the past as it is today. Prior to the Telecommunications Act of 1996, Ameritech faced a relatively low risk of stranded plant. In the newly competitive market, some stranded plant is probably inevitable. Indeed, the risk of stranded plant is particularly acute in the context of UNEs. This risk must be accounted for in depreciation rates if Ameritech is to be able to recover its costs. Clearly, these UNE-specific considerations could not have been reflected in the FCC’s pre-Telecommunications Act depreciation analysis. They were not at issue then.

76. AT&T cost witness Mr. Henson acknowledges that depreciation lives should be shorter to reflect a more competitive environment. In the Ameritech Ohio “permanent” cost docket, Mr. Henson gave the following testimony:

Q. ... Increased competition will stimulate technological innovation; do you agree?

A. Yes.

Q. And would you agree that increased competition brings on more rapid technological change?

A. Yes.

Q. And would you agree that increased competition brings on more rapid technological gain or advance?

A. Yes, I would.

Q. And do you agree that we’re involved in an industry here, the telecommunications industry, that’s experiencing rapid technological development and change?

A. Yes.

⁴⁰ Herb Kirchhoff, and Madeline Murphy, *Inside the Competitive Local Exchange*, Telecom Publishing Group, 1995 p. 202.

Q. And increased competition can only - can only increase the speed with which all of this is happening; do you agree?

A. Yes.

Q. Now, in that environment, is it reasonable to expect that the equipment and systems used by a telecommunications provider will become obsolete more quickly?

A. Yes.

Q. And that means they're going to have to be replaced more often; that is, the equipment and the systems are going to have to be replaced more often?

A. Yes.

Q. And that means their economic or useful life will become shorter?

A. Yes.

Q. And that means they'll become obsolete more quickly?

A. Yes.

Q. And that means the depreciation life also will become shorter?

A. Yes.⁴¹

77. Clearly, the increased risk of stranded plant and the increased pace of obsolescence resulting from the passage of the Act, would justify increasing the rate of depreciation. However, the depreciation rates used in Ameritech's TELRIC cost studies in Michigan are identical to those used in the past TSLRIC studies for many years. Hence, Ameritech's depreciation rates are clearly conservative. They reflect no revision in light of the effects of Act.

78. The observation that increased competition must increase economic depreciation is not new to the FCC: AT&T aggressively advocated this position before the FCC after divestiture. Faced with increasing competition in the interexchange market during the 1980s,

⁴¹ See 2/18/97 Testimony of James F. Henson, pp. 86-87.

AT&T continually claimed in filings with the FCC that the combined effect of years of artificially long depreciation lives, low retail rates, and expanding competition left AT&T with two serious threats. First, AT&T asserted that it had accumulated a large depreciation reserve deficiency. Second, according to AT&T, the loss of its monopoly franchise meant that future capital recovery was no longer assured. AT&T argued that uneconomic depreciation practices conflicted with sound competition policy, harmed economic efficiency, and jeopardized AT&T's financial health. In granting AT&T's petition to modify AT&T's prescribed FCC depreciation rates, the FCC agreed that reform of its depreciation policies was critical as AT&T underwent the transition to a competitive market.

79. AT&T argued that as the FCC continued to foster competition in the interexchange market, regulatory practices should also change to reflect this changing competitive reality:

The Commission's current depreciation practices applied to AT&T were developed for use by carriers operating in a monopoly environment. In such an environment, characterized by relative technological stability and institutionalized barriers to entry, regulatory practice estimated long service lives of plant and thus kept depreciation rates and expenses relatively low. This practice is completely inappropriate for AT&T today. The explosive growth of competition in the interexchange marketplace, as fostered by the Commission, and the rapid progress of technology have shortened the economically useful lives of AT&T's plant and have constrained AT&T's opportunity to recover the costs of that plant through depreciation charges.⁴²

80. In addition, AT&T argued that unrealistically low, prescribed depreciation lives destroyed incentives for investment in new technologies and hindered economic efficiency in a competitive market. AT&T insisted its depreciation rates be allowed to reflect the competitive environment the FCC professed to support:

⁴² Petition of AT&T before the FCC, in the Matter of the Modification of the Commission's Depreciation Prescription Practices as Applied to AT&T, February 15, 1989, p. 2.

A major goal of the Commission is to increase economic efficiency by promoting competition in the interexchange marketplace, fostering improvements and encouraging technological developments that benefit telecommunications users. In order to achieve this goal, it is essential that AT&T's [regulated] depreciation expenses reflect...marketplace realities. Otherwise, wrong signals are given to competitors, investors and regulators. Such erroneous signals can distort competition and hinder technological innovation.⁴³

81. Furthermore, AT&T argued that the FCC was obligated to allow AT&T's price to recover increased depreciation expenses brought on by the shift to economic depreciation rates. Should depreciation reform occur after the onset of price cap regulation, AT&T argued, it should be permitted to make a one-time price readjustment to include those expenses:

Depreciation expense is a real economic cost that must be recovered through revenues and thus reflected in prices. Once the depreciation rate is reestablished at a realistic level, that change should be subject to a one-time adjustment to AT&T's price caps then in effect.⁴⁴

82. The FCC agreed that depreciation reform was necessary. The FCC allowed AT&T to shorten depreciation lives and granted a partial amortization of remaining balances on defunct analog circuit equipment:

The increasing level of competition has significantly accelerated the advancement of state-of-the-art in telecommunications. One result is AT&T's accelerated replacement of its analog transmission facilities. AT&T states that its customers perceive a need for and hence require service over the most modern digital facilities. As a result, AT&T has embarked on a rapid conversion to an all-digital network employing fiber optics. AT&T has demonstrated through the recent acceleration of retirement of its analog equipment, that it is carrying out this ambitious replacement plan. The substantial increase in depreciation rates prescribed herein is based upon this plan.⁴⁵

⁴³ Ibid., p. 17.

⁴⁴ Comments of AT&T, In the Matter of Policy and Rules Concerning Rates for Dominant Carriers, FCC Docket No. 87-313, October 19, 1987, page 58.

⁴⁵ FCC Decision 90-43, 5 FCC Rcd. No. 3, January 25, 1990, p. 661.

83. As a result of AT&T's petitions, in 1989 the FCC permitted AT&T to increase its depreciation rate, resulting in an effective increase of \$994 million in annual depreciation expense.

84. As with AT&T when its market opened to competition, failure to allow incumbent LECs to apply economic depreciation lives is likely to hinder competition and cause incumbent LECs financial harm. Regulatory depreciation policies designed to keep retail rates low, though well intentioned, simply are not compatible with a competitive regime. Decision makers could keep depreciation rates artificially low when the monopoly franchise kept revenues streams stable and predictable. However, as the incumbent LEC franchise disappears, the regulatory tools available to manage cash flows will diminish precipitously. Thus, unless depreciation rates are allowed to migrate to economic levels, Ameritech will face both a significant competitive disadvantage vis-à-vis new entrants and substantial and continued threats to its financial health.

85. AT&T clearly understood the substantial competitive disadvantage in which it would find itself absent such reform, when it argued strenuously for depreciation rate reform and recovery of its capital reserve deficiency. AT&T obviously understands that Ameritech awaits a similar fate unless similar reforms and recovery mechanisms are enacted. Clearly, AT&T's current advocacy is directly at odds with its position before the FCC when AT&T itself faced the incompatibility of increased competition with outmoded depreciation policy.

V. ADDITIONAL CRITICISMS OF AMERITECH'S COST MODELS

A. Collocation

86. Mr. Henson argues that Ameritech's collocation prices cannot be forward looking because the cost studies upon which they are based estimate the costs of optimally modifying existing central offices from a single user environment to a multi-user environment; rather than

determining costs as if a new, multi-user building were constructed from scratch.⁴⁶ This is another example of how AT&T misuses and distorts the concept of forward looking cost to advocate unrealistically low prices. In fact, going forward, Ameritech is not going to destroy and rebuild all of its wire center buildings so as to accommodate the multi-user environment. As Ameritech accommodates collocators going forward, it will in each case reconfigure its existing buildings so that they can satisfy demand for collocation. As I explained above, forward looking costs should reflect the true costs that the incumbent will bear going forward, given the existing network architecture. Ameritech's forward looking costs simply do not and will not within any reasonable time frame, if ever, reflect the costs of building new switching/collocating centers designed to satisfy the demand for collocation. To require that collocation costs be determined on the basis of a purely hypothetical cost structure that may never be achieved is bad economics and bad public policy.

B. Joint and Common costs

87. Mr. Henson objects to Ameritech's joint and common cost analysis because it is based on 1997 budget data. In fact, using 1997 budget data is not only reasonable and practical, it is entirely consistent with the economic concept of forward looking cost. Using historical data would clearly not be forward looking. What then is an appropriate alternative? Some commenters have argued that joint and common costs should be calculated as those of a hypothetically, ideally efficient firm. No one has provided any hint as to how one could in fact implement such a study, however, even if it were economically appropriate to do so. Indeed, in the Hatfield model version 2.2.2, which was previously advocated by MCI and AT&T in Michigan and the other Ameritech states for determination of interim and permanent rates, common costs were based on historical (ARMIS) data from Tier 1 telephone companies, from AT&T accounting reports, and from costs in other industries. The common costs in that model

⁴⁶ See June 4, 1997 Affidavit of James F. Henson, p. 20.

were not derived from construction of a “forward looking” model of a hypothetical firm in the business of providing unbundled network elements. Nevertheless, the common cost markup in the Hatfield model for unbundled network elements was 10% (over the Hatfield TELRICs), the same percentage markup as the common cost markup in Ameritech’s model.⁴⁷

88. In any event, even if one could estimate the forward looking joint and common costs of a hypothetically efficient firm, it would not be appropriate to do so. The reason, again, is that the FCC Order, and economic principles, require that forward looking costs be those of the incumbent. This is what Ameritech’s 1997 budget data measure. As Mr. Broadhurst explains in his July 7th affidavit, budget data are reliable estimators of forward looking costs in the coming year because Ameritech managers are accountable for their budgets, and compensation is determined accordingly. Moreover, Ameritech operates under price cap regulation, which imposes strong incentives on Ameritech to streamline operations and economize on costs. It would be incorrect to portray Ameritech as an undisciplined monopolist with no incentives, and no constraints, that induce operational efficiency.

89. Dr. Ankum’s claim that Ameritech’s shared and common costs are significantly higher than is justifiable⁴⁸ is grossly inconsistent with his own prior advocacy of the Hatfield model. Based on testimony of Hatfield expert Terry Murray, who explained during the MCI arbitration in Wisconsin how to calculate the shared costs in the Hatfield model, in the Hatfield model, 28% of the Hatfield TELRICs in Michigan are actually shared costs.⁴⁹ Together with the 10% markup over TELRIC for common costs, this means that approximately 35% of total costs in the Michigan Hatfield model are shared and common costs, which is equivalent to a 53%

⁴⁷ Ankum, August, H., “An Economic White Paper on Behalf of MCI Telecommunications Corporation,” August 28, 1996, p. 20.

⁴⁸ See June 5, 1997 Affidavit of Dr. August Ankum, p. 47.

⁴⁹ According to the testimony of Ms. Murray, shared costs are calculated in the Hatfield model by using the subtotal of “Supporting Network Expenses,” divided by “Total Network Costs” in the “Exp by Service” worksheet of the model. We used this methodology for Michigan to derive the 28% number.

markup over the net TELRIC (netting out of the TELRIC the shared cost component). This is significantly higher than the markup for shared and common costs calculated by Ameritech Michigan, which is 29.4% over TELRIC on average, according to the July 7 affidavit of Mr. Broadhurst.

90. Dr. Ankum asserts that “it should be *impossible* that changes in projected demand for unbundled network elements have any effect on the *per unit* shared and common cost.” [Emphasis in original]⁵⁰ He asserts that, because “Ameritech is experiencing constant economies of scale [sic],”⁵¹ average costs should remain constant with changes in projected UNE demand. Dr. Ankum’s argument is that average costs cannot vary with volume of UNE sales, because Ameritech must operate according to constant returns to scale. In fact, his assertion that Ameritech’s provision of UNEs operates at constant return to scale is entirely baseless. Moreover, Dr. Ankum is apparently confused about the nature and recovery of common costs. First, generally speaking, common costs are not significantly sensitive to the predicted level of demand. That is, changes in the predicted volume of elements provided do not markedly affect the level of total common costs, as Dr. Ankum appears at one point to acknowledge. Given that and the fact that there are common costs which must be recovered through the sale of unbundled elements, it is not surprising or suspicious that changes in forecasted demand would have an impact on the per unit common cost. Holding the common cost pool constant, this is a purely mechanical, mathematical fact, and has nothing whatever to do with economies of scale or lack thereof. For example, if Ameritech Indiana has \$100 in common costs recoverable from unbundled loops and expects to sell 100 unbundled loops, then the price must reflect \$1 per loop to cover the common costs. If Ameritech Indiana expected to sell 200 unbundled loops instead, then the price would have to include \$.50 per loop, instead of \$1, to recover the same \$100 in common costs. The sensitivity of the unit price to the level of demand is inescapable.

⁵⁰ See June 5, 1997 Affidavit of Dr. August Ankum, p. 57.

⁵¹ See June 5, 1997 Affidavit of Dr. August Ankum, p. 57.

91. However, this discussion omits pertinent steps in the cost study methodology that further undermine Dr. Ankum's criticism. Consider more carefully the impact of changes in projected UNE demand on per unit shared and common costs. If, for example, the projected demand for UNEs had been half that in the actual study, the estimated budget for AIIS would have been smaller accordingly. A smaller AIIS budget has two impacts in the Andersen methodology. The pool of shared costs would have been smaller, so that the per-unit shared cost would reflect a smaller pool of costs allocated over a smaller quantity of elements. The fact that the pool of shared costs would be smaller was not accounted for in Dr. Ankum's comments. Second, the Andersen methodology allocates a share of common costs to UNEs on the basis of the AIIS budget. If the AIIS budget were smaller, the proportion of common costs allocated to UNEs would have been smaller as well. The effect would again be to leave a smaller pool of common costs to be allocated over the smaller quantity of elements. Hence, for both shared and common costs, the Andersen methodology adjusts for the effect of changes in demand projections in more than the mechanical way discussed above. The resulting prices would, in the full analysis, therefore not move mechanically in reciprocal proportion to the demand, nor would they likely be independent of the projection of demand. They would, properly, reflect the counterposing impact of fewer units of UNEs, and smaller pools of shared and common costs.

92. Dr. Ankum's conclusion that Ameritech's prices are "discriminatory" as a result of the treatment of shared and common costs is faulty for another reason too. In fact, there are shared costs associated with unbundling and the AIIS UNE operations that are not associated with Ameritech's use of loops and ports for providing bundling services at retail. The shared costs attributable to unbundling should be recovered from the UNE customers, and should not be reflected in Ameritech's retail prices. This is cost based pricing and is not discriminatory.

C. *Residual Costs*

93. Mr. Henson argues that Ameritech has violated the FCC Order by indirectly including residual costs in its studies, in particular, by reducing fill factors for outside plant and switching costs. By using the term “residual,” Mr. Henson appears to be attempting to create the false impression that Ameritech has included *embedded* costs in its TELRIC studies. This is incorrect. As Mr. Henson well knows, the term residual as used by Ameritech is not synonymous with embedded. Ameritech has, indeed, reduced its fill factors, in order to be consistent with both the FCC Order and the economic principles I have articulated herein. However, this change in no way has caused embedded costs to be included in the TELRIC studies. The spare capacity implicit in the target fill factors is a forward looking cost, not an embedded one, and is, again, required by the FCC Order, not in violation of it. There are no embedded costs in Ameritech's cost studies.

94. Dr. Ankum's comments regarding Ameritech's residual costs are similarly misleading.⁵² First, Dr. Ankum incorrectly asserts that “by definition,” Ameritech's residual costs are not costs that are efficiently incurred. In fact, by definition, Ameritech's residual costs include any costs that were omitted, for whatever reason, from the TELRIC, shared, and common cost studies. These necessarily include, as I discussed above, the costs of all shared and common capital items, because the Andersen study did not cover capital costs. It is obvious that an efficient firm will incur investment, or capital, costs at the shared and common level, and these costs reside in the residual level simply because they were not addressed in the shared and common study. The residual cost category also necessarily includes all costs of spare capacity that constitutes the difference between actual fill factors and target fill factors. The fact that Ameritech's actual fill is below the target does not imply that these costs were incurred inefficiently. In fact, Ameritech's ready-to-serve obligation requires that Ameritech hold more

⁵² See June 5, 1997 Affidavit of Dr. August Ankum, p. 74.

spare capacity than might be optimal for a firm without such a regulatory obligation. The fact that these costs appear in the residual is, again, simply due to the fact that they were not included in the TELRIC.

95. While these costs are legitimate, forward looking costs of doing business (particularly given Ameritech's special regulatory obligations), they are in any event not included in Ameritech's TELRIC-based prices. By definition, no residual costs appear in the TELRIC, joint, or common cost analysis.

D. Reasonableness of Ameritech's TELRIC prices

96. Mr. Henson argues that Ameritech's TELRIC cost studies cannot be in compliance with the Commission's TELRIC methodology, by referencing a calculation that purports to show that Ameritech's proposed forward looking costs for loops and ports, if extended to the total number of access lines served by Ameritech, exceed Ameritech's total expenses for 1996. This calculation is simply erroneous. Mr. Henson relies on testimony by Mr. Brad Behounek in the Michigan cost docket for this calculation. My review of Mr. Behounek's supporting exhibits reveals the following blatant errors, which cause his calculation to be so grossly overstated as to be meaningless.

- He assumes that virtually every access line in the 5 state Ameritech region would be subject to either a line connect fee or service ordering charge every year. This is blatantly erroneous. It is obviously incorrect to assume that each of the over 19 million Ameritech customers would establish or change their service each year. Yet this would be necessary in order to Ameritech to incur a service order charge or a line connect fee for each customer. It certainly is erroneous to assume that Ameritech in fact incurred the non-recurring costs of providing service ordering or line connect for each customer in 1996. But comparing his calculated "cost" figure to Ameritech's 1996 operating costs could only be valid, aside from other problems, if in fact Ameritech incurred these costs for each customer. Removing this erroneous charge reduces the cost calculation by over 21%.
- He assumes that shared and common costs would increase proportionately with the number of lines served. This is contrary to the fundamental principal of shared and common costs, and causes the shared and common costs to explode

when scaled up to well over 19 million access lines. If these costs increased proportionately with lines served, they would be incremental to lines, not shared or common. This erroneous expansion in shared and common costs accounts for almost 22% of the total calculation.

97. Hence, the calculations corresponding to these two errors alone account for 43% of the 12.4 billion dollars of Mr. Henson's supposed TELRIC "costs." Aside from the flaws in the cost calculation, however, it is meaningless to compare TELRIC prices to Ameritech's accounting operating costs. The comparison is apples to oranges. Operating costs are not comparable to TELRIC costs because:

- TELRICs include income taxes, and operating costs do not. Income taxes in 1996 equaled over 10% of Ameritech's operating costs.⁵³
- Operating costs are based on historical accounting costs, and are in no way forward looking.
- Operating costs do not include the cost of equity capital, which is included in TELRIC.

VI. AMERITECH'S COST MODELS UNDERSTATE TRUE FORWARD LOOKING COSTS

98. While I believe that Ameritech's cost models are substantially sound and are in compliance with the Act and the cost principles of the Order, they are a number of respects in which they do not fully account for all of the forward looking costs of providing UNEs. I enumerate those respects here and explain why they in each case cause Ameritech's cost models to understate true forward looking costs.

99. First, although I consider the AFAM loop cost model to be appropriately forward looking in the way it handles the routing of outside plant, there is one feature of the AFAM model that I consider to be a serious flaw. The problem arises in the way the model treats discontinuities in available cable size, and the flaw always biases the resulting costs to be lower

⁵³ Ameritech 1996 Annual Report.

than they properly should be. Consider an example. Suppose demand in an area calls for 200 working lines or "cable pairs." At a fill factor of 80%, this would require that 250 lines be provided. However, actual cables do not come in 250 cable pair size; the smallest cable size available that would serve that demand is a 300 pair cable. Hence, properly speaking, the 200 lines should recover the cost of the entire 300 pair cable. Instead, however, the AFAM model effectively "pro-rates" the cost of the 300 pair cable to the cost of a hypothetical 250 pair cable, and the 200 working pairs recover only that pro-rated share of the total investment. In this example, 17% of the cable cost is unrecovered, despite the fact that it must be incurred to provide the 200 lines due to the discontinuity of actual cable sizes.

100. It is my understanding that now that this error has been recognized, Ameritech plans to correct it going forward. However, those corrections will not be reflected in Ameritech's TELRIC costs that have been submitted in the Michigan cost docket, and those costs therefore will understate true forward looking costs.

101. The second reason that Ameritech's cost studies underestimate Ameritech's true forward looking costs of loop placement. Ameritech's cost studies for outside plant average together the cost of providing unbundled loops in new or easy placement situations and the cost of building new loops to existing buildings, subdivisions, and other difficult placements. Building new loops to homes in suburban areas that are already established with streets, sidewalks, lawns, and flower beds is substantially more costly than placing loop in a newly built subdivision in which trenches may already be open by the developer, structure costs may be shared with other utilities, and landscaping is not yet in place. Moreover, although Ameritech will sometimes be able to meet a request for an unbundled loop by deploying its spare capacity already in place, at other times the demand will have to be met by new build and new placement of loop. Ameritech's current costs take an average of the forward looking costs of these different scenarios. This averaging may result in significant underestimation of forward looking costs.

102. This averaging might result in economic distortions and under-recovery of cost for the following reason. Ameritech's cost studies assume that the mix of placement scenarios is similar to its recent experience. In my view, the experience in the near future could differ significantly from past experience. In particular, demand for Internet access appears to be expanding rapidly.⁵⁴ It is therefore possible that, in the next few years, demand for residential second and third lines will increase far beyond the spare capacity of the outside plant in place in many areas. In that case, Ameritech's costs of placement will be significantly higher than the averaged costs assumed in Ameritech's model, because there will be a much higher percentage of difficult placements than in the recent past. Moreover, because Ameritech's estimated costs of placement are based on an average of placement scenarios, competitors can buy loops from Ameritech rather than self-provision them whenever they would have to do a new construction, and not bear the full costs they cause. Ameritech would bear the full construction costs, while the competitor buying the loop would generally pay a lower price. Competitors would be induced to buy loop from Ameritech even when it would be equally or more cost effective to build it themselves. Not only would this distort their incentives, it would exacerbate the cost recovery problem for Ameritech.

103. The standard remedy for such a problem is simply to deaverage the prices, and charge one cost-based price for difficult placements, and a different cost-based price for existing or easy placement. Because Ameritech has not done so, it runs the risk of substantially underestimating, and under-recovering, forward looking placement costs.

104. Third, as I mentioned earlier, the study by Arthur Andersen of Ameritech's shared and common costs did not examine all of Ameritech's non-incremental costs. In particular, those studies reviewed only expense items; no capital investments were included in the Andersen

⁵⁴ According to a recent report published by Forrester Research, Inc. "...The number of U.S. households on the Internet will jump to 33 million in the year 2000, up from 10 million in 1996. The number of businesses connected will rise from 4% today to 33% in 2000." See "Sizing the Internet Economy," Forrester Research, Inc., 11/96.

study. This was an expedient adopted by the Andersen team because, I understand, they simply did not have the time to properly examine the investment as well as expense items. Hence, no capital costs associated with joint or common functions are captured in that analysis at all. Such capital costs include forward looking costs of buildings and some of the equipment at Ameritech Indiana's AIIS customer service center, which is responsible for processing orders for UNEs from competing carriers that are Ameritech Indiana's "wholesale" customers. For example, furniture and fixtures in the corporate office are not included anywhere in Ameritech's cost analysis. Properly measured, capital costs of joint and common functions are entirely legitimate forward looking costs and UNE prices should contribute to their recovery. However, they are entirely absent from Ameritech's TELRIC studies and UNE prices. This is a defect that I am told will be rectified in future revisions of Ameritech's cost models, but the TELRIC cost studies as they have been submitted in Michigan retain this flaw, which causes Ameritech's costs to systematically underestimate true forward looking costs.


105. Finally, while Ameritech's cost studies are consistent with the FCC's scorched node TELRIC methodology for determining forward looking costs, that methodology is highly idealistic and, therefore, probably understates true forward looking costs. As I discussed above, Ameritech's methodology assumes 100% state-of-the-art technology, and therefore excludes all of the very real costs of making new technologies work with old ones as the network develops and is optimally upgraded over time. A more realistic model of forward looking costs would account for the fact that real firms, operating efficiently, have infrastructure of overlapping generations of technology, all of which must be compatible to be operational.

106. This concludes my affidavit.

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

VERIFICATION

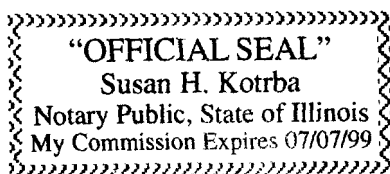
I, Debra J. Aron, having first been duly sworn, do hereby state that I have read the foregoing Verified Statement of Debra J. Aron, am familiar with the facts set forth therein, and that such facts are true and correct to the best of my knowledge and belief.


Debra J. Aron

Subscribed and sworn to
before me this 5th
day of July, 1997.

Gerson H. Kotelva
Notary Public

My Commission expires _____



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